Available online at www.sciencedirect.com

ScienceDirect

Journal of the Chinese Medical Association xx (2016) 1−2

www.jcma-online.com

Editorial

Urinary incontinence: Is vaginal delivery a cause?

Urinary incontinence (UI) is a distressing symptom negatively impacting quality of life and constitutes a worldwide problem, affecting 10−40% of women around the globe.[1] Genetics, family history, race, age, pregnancy, parity, mode of delivery, history of pelvic or lower abdominal surgery, and chronically increased abdominal pressure, such as chronic cough, constipation, obesity, and spinal cord diseases, are reported to be related to the development of UI.[2] Among these factors, pregnancy-related risk factors are well-identifiable risk factors for UI, including weight gain during pregnancy, smoking, pregestational body mass index (BMI), BMI at term, duration of the first and second stages of labor, spontaneous or assisted vaginal delivery, perineal or vaginal trauma, newborn weight, and maneuver procedure during labor, such as forceps, vacuum, episiotomy, and analgesia methods.[2] Furthermore, more than half of these factors, such as the duration of the first and second stages of labor, assisted vaginal delivery, perineal or vaginal trauma, and of the most importance, maneuver procedures during labors, including the use of forceps, vacuum, episiotomy, and analgesia methods, occur in women with normal vaginal delivery, thereby contributing to the rational of the study published by Kokabi and Yazdanpanh[3] in this issue of the *Journal of the Chinese Medical Association*.[3]

In fact, it is not surprising that Kokabi and Yazdanpanh[3] found that women after vaginal delivery had a significantly higher risk of postpartum stress UI than those after cesarean section. Consistent with the well-known pregnancy-related risk factors,[2] Kokabi and Yazdanpanh[3] showed that assisted vaginal delivery, episiotomy, birth weight, and higher BMI were positively correlated with the increased risk of postpartum stress UI. In addition to the abovementioned factors, the authors also found that psychosocial and economic factors might also contribute to the increased risk of postpartum stress UI since women with lower incomes, lower neighborhood residence, and elderly women were associated with a higher risk of stress UI. Moreover, women undergoing cesarean section could not be totally free from postpartum stress UI, even though in general, these were primiparous women undergoing vaginal delivery compared with those after elective cesarean section. However, there are several findings of Kokabi and Yazdanpanh's study that merit additional discussion.

First, the frequency of postpartum stress UI was the highest at the end of 1 month after delivery (11.2%), regardless of the delivery mode that was analyzed, which slowly decreased to 9.4% and 6.4% at the end of 6 postpartum months and 12 postpartum months, respectively. Most interestingly, the frequency of postpartum stress UI showed a similar trend of recovery in both delivery modes, declining from 14.2% to 9.5% in the vaginal delivery and from 7.9% to 3.6% in the cesarean section,[3] suggesting that term pregnancy and postpartum status could be important for the development of postpartum stress UI. A variety of clinical observations might explain the phenomenon. Hormone factor, especially progesterone, and a dramatic increase of abdominal pressure and/or body weight might be a key factor. Female sex hormones are important not only for maintaining normal functioning of many organs and systems, including genital urinary tract, the cardiovascular system, and bone,[4,5] but also for contributing to the development of diseases, such as endometrial cancer and breast cancers.[6,7] Progesterone, a muscle relaxant and female sex hormone, is believed to be a critical factor in maintaining a successful pregnancy and is often used as a tocolytic reagent.[8] Due to the muscular relaxation effect and significantly increased intra-abdominal pressure, this can partly explain why pregnancy itself is a risk factor for the development of stress UI, and how postpartum stress UI could be ameliorated as a prolongation of postpartum interval because of loss of both precipitating factors. Therefore, some of the strategies could be applied to minimize the risk of postpartum stress UI. One strategy is body weight control since obesity is a long-term health problem.[9] Therefore, all women who plan to conceive should be well educated about prepregnancy body weight and term pregnancy body weight.

Second, it is relatively unfair to compare the frequency of postpartum stress UI between vaginal delivery and elective cesarean section. Both prolonged course of labor and assisted vaginal delivery are precipitating factors for postpartum stress UI. However, to minimize these factors, the comparison between cesarean section due to dysfunction labor and assisted vaginal delivery might provide a better understanding of the superior delivery mode choice because both had a similar "stress" and/or "trauma" on the pelvic floor during labor. If the result supports the proposition that cesarean section is a better

http://dx.doi.org/10.1016/j.jcma.2016.09.004
1726-4901/Copyright © 2016, the Chinese Medical Association. Published by Elsevier Taiwan LLC. This is an open access article under the CC BY-NC-ND license (http://creativecommons.org/licenses/by-nc-nd/4.0/).

Please cite this article in press as: Horng H-C et al., Urinary incontinence: Is vaginal delivery a cause?, Journal of the Chinese Medical Association (2016), http://dx.doi.org/10.1016/j.jcma.2016.09.004

choice to decrease the risk of postpartum stress UI, we might suggest that the choice of instrument to use for assisted vaginal delivery might be carefully balanced by consideration of a risk and benefit ratio.

The cesarean section rate has increased worldwide, reflecting a trend in obstetric practice that is not wholly consistent with the common concept of improving women's health and public health insurance policy. In fact, the cesarean section rate is generally considered a negative indicator of national health.[10] The study by Kokabi and Yazdanpanh[3] supported the protective role of the development of postpartum stress UI in primigravida pregnant women undergoing elective cesarean section, hinting of the potential benefits of cesarean section if disorders of the pelvic floor are taken into consideration. This might further exacerbate the tendency to use an elective cesarean section for the first babies of primiparous women, especially after widespread broadcast within a certain population, such as movie stars or singers. Therefore, representation of the data, for example, through a publication by Kokabi and Yazdanpanh[3] in the current issue, should be cautiously evaluated and carefully understood.

Conflicts of interest

The authors declare that they have no conflicts of interest related to the subject matter or materials discussed in this article.

Acknowledgments

This article was supported by grants from the Ministry of Science and Technology, Executive Yuan (MOST 103-2314-B-010 -043 -MY3), and Taipei Veterans General Hospital (V103C-112; V104C-095; and V105C-096). We also appreciate the Clinical Research Core Laboratory and the Medical Science & Technology Building of Taipei Veterans General Hospital for providing experimental space and facilities.

References

1. Chang CP, Chang WH, Hsu YM, Chen YJ, Wen KC, Chao KC, et al. Comparison of single-incision mini-slings (Ajust) and standard trans-obturator midurethral slings (Align) in the management of female stress urinary incontinence: a 1-year follow-up. *Taiwan J Obstet Gynecol* 2015;**54**:726−30.
2. Bozkurt M, Yumru AE, Sahin L. Pelvic floor dysfunction, and effects of pregnancy and mode of delivery on pelvic floor. *Taiwan J Obstet Gynecol* 2014;**53**:452−8.
3. Kokabi R, Yazdanpanh D. Effects of delivery mode and sociodemographic factors on postpartum stress urinary incontinence in primipara women: a prospective cohort study. *J Chin Med Assoc* 2016;**79**. [in press].
4. Huang BS, Lee WL, Wang PH. The slowing down of renal deterioration but acceleration of cardiac hypertrophy: is estrogen receptor-α a hero or villain? *Am J Physiol Renal Physiol* 2014;**307**:F1352−4.
5. Huang BS, Chang WH, Wang KC, Huang M, Guo CY, Chou YJ, et al. Endometriosis might be inversely associated with developing chronic kidney disease: a population-based cohort study in Taiwan. *Int J Mol Sci* 2016;**17**:1079.
6. Lee WL, Yen MS, Chao KC, Yuan CC, Ng HT, Chao HT, et al. Hormone therapy for patients with advanced or recurrent endometrial cancer. *J Chin Med Assoc* 2014;**77**:221−6.
7. Lee WL, Lee FK, Shyu MK. Mammography screening causes anxiety in women. *J Chin Med Assoc* 2015;**78**:261−2.
8. Ding MX, Luo X, Zhang XM, Bai B, Sun JX, Qi HB. Progesterone and nifedipine for maintenance tocolysis after arrested preterm labor: a systematic review and meta-analysis of randomized controlled trial. *Taiwan J Obstet Gynecol* 2016;**55**:399−404.
9. Çinar M, Tokmak A, Güzel AI, Aksoy RT, Özer İ, Yilmaz N, et al. Association of clinical outcomes and complications with obesity in patients who have undergone abdominal myomectomy. *J Chin Med Assoc* 2016;**79**:435−9.
10. Li WH, Yang MJ, Wang PH, Juang CM, Chang YW, Wang HI, et al. Vaginal birth after cesarean section: 10 years of experience in a tertiary medical center in Taiwan. *Taiwan J Obstet Gynecol* 2016;**55**:394−8.

Huann-Cheng Horng
Yi-Jen Chen
Department of Obstetrics and Gynecology, Taipei Veterans General Hospital, Taipei, Taiwan, ROC

Department of Obstetrics and Gynecology, National Yang-Ming University, Taipei, Taiwan, ROC

Peng-Hui Wang*
Department of Obstetrics and Gynecology, Taipei Veterans General Hospital, Taipei, Taiwan, ROC

Department of Obstetrics and Gynecology, National Yang-Ming University, Taipei, Taiwan, ROC

Institute of Clinical Medicine, National Yang-Ming University, Taipei, Taiwan, ROC

*Corresponding author. Dr. Peng-Hui Wang, Department of Obstetrics and Gynecology, Taipei Veterans General Hospital, 201, Section 2, Shih-Pai Road, Taipei 112, Taiwan, ROC.
E-mail addresses: phwang@vghtpe.gov.tw, pongpongwang@gmail.com, phwang@ym.edu.tw (P.-H. Wang).

Please cite this article in press as: Horng H-C et al., Urinary incontinence: Is vaginal delivery a cause?, Journal of the Chinese Medical Association (2016), http://dx.doi.org/10.1016/j.jcma.2016.09.004